53. (new) The method of claim 1 wherein the thermoplastic composition is water soluble.

54. (new) The method of claim 1 wherein the thermoplastic composition is biodegradeable.

REMARKS

Claims 33 & 44 have been amended to recite the complex viscosity of the hot melt adhesive. Support is found throughout the specification and particularly in original claim 21 and p. 9, lines 11-15. Further, the independent claims were amended to place the claims in better condition for allowance. New claims 47-54 represent preferred embodiments. Support for these claims is found through the specification and particularly at p. 10 , lines 11 to p. 11, line 19 and pp. 18-19.

Claims 33, 36, and 38 are rejected under 35 U.S.C. 102 (e) as anticipated by or, in the alternative under 35 U.S.C. 103 (a) as obvious over Boger et al.

Claim 33 is directed to a method of coating a hot melt adhesive onto a substrate. The method recites that a melted hot melt adhesive is dispensed as a continuous film at a coating temperature wherein the thermoplastic composition has a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second and wherein the film has an area weight of less than 20 g/m^2. The Applicants do not dispute that Boger et al. suggests that a hot melt coating material could be employed. The Applicants also do not dispute that the terminology "hot melt" typically refers to an adhesive that is applied in a melted state. Further, the Applicants do not contest that a continuous coating of hot melt can be achieved with the apparatus of Boger et al. However, the Applicants submit that as evidenced by the declaration, a continuous coating having an **area weight of less than 20 g/m^2** can not be obtained with molten hot melt adhesive employing the method of Boger et al. **(Supplemental declaration stating that "a continuous film could not be obtained" ???)**

There is no teaching in Boger et al. that disputes the facts set forth in the declaration. Boger et al. does not reduce to practice a single embodiment employing a hot melt adhesive, let alone a molten hot melt adhesive. Further, Gill et al. U.S. Patent No. 5,421,921 depicts the same apparatus for producing a fibrous web adhesive material. As previously stated, the Applicants agree that segmented die can be employed to produce a continuous coating with a molten hot melt adhesive. However, a continuous coatings can only be obtained at high coating weights, substantially higher than 20 g/m^2. As further evidence of this position, the Applicants would like to direct the Examiners attention to Gill et al., column 9, lines 8-10 that states, "While the coatings applied to a book spine for cover laminations may be solid and relatively thicker, lighter weight fibrous adhesive coatings are very useful in bonding or laminating substrate together . . ."

The Applicants submit that Boger et al. does not teach the present invention, particularly in view of the fact that the Applicants have demonstrated the technical inoperability of the method for obtaining a continuous film having at a low coating weight with a molten hot melt adhesive.

Claims 1, 3-6, 8-12, 33, 35-46 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Sanftleben et al. in view of Boger et al. for the same reasons as expressed in paper no. 6, paragraph 4. Sanftleben et al. generally relates to hot melt conformal coatings. A variety of compositions and general coating techniques are suggested. However, Sanftleben et al. differs from the present invention with regard to the thickness (area weight) of the coating and with regard to the viscosity of the hot melt adhesive.

The thinnest conformal coating of Sanftleben et al. reportedly had a thickness of 0.025 mm. (See column 10, lines 29-31, line 46, line 50, and lines 53-54) Assuming a density of 1 g/cc, this thickness is equivalent to an area weight of about 24 g/m^2. **(Confirm calculations - Declaration?)** The method of the present invention advantageously produces continuous coatings at area coating weights of less than 20 g/m^2. (Note that Example 18 at p. 19 only had a

coat weight of 7-8 g/m^2, yet was free of pinholes as evidenced by the fact that it could resist up to 80 cm^3 of water pressure prior to a leaking.)

Further, as stated in Applicants response submitted 2-14-00, Sanftleben et al. states that, "For use as a conformal coating, the coating compositions preferably has a viscosity of less than about 1000 cps (10 poise) at its application temperature, with a viscosity of less than about 250 cps (2.5 poise) being preferable when forming thin film conformal coatings." In contrast, the method of the present invention employs an adhesive at an application temperature wherein the composition has a substantially higher viscosity. Claim 1 recites that the complex viscosity of the thermoplastic composition is less than about 500 poise at about 1000 radians/second and ranges from about 100 poise to about 1,000 poise at about 1 radian/second. Since Brookfield viscosity is a low shear measurement, the values recited by Sanftleben et al. correlate to the 1 radian/second condition. **(Declaration?)** Accordingly, the adhesive composition of the present invention is at least 10 times higher in viscosity and 40 times higher than the preferred hot melt viscosity set forth by Sanftleben et al. for thin conformal coatings. The criticality of the viscosity of the composition with regard to the present invention is discussed in the specification at p. 9, line 31 to p. 10, line 4 and p. 12, lines 27-32. The hot melt needs to be sufficiently high in viscosity such that it can be suspended as a continuous film.

Claims 2 and 34 are rejected under 35 U.S.C. 103 (a) as being unpatentable over the references as set forth above in paragraph 4 further taken with Reynolds for the same reasons as expressed in paper no. 6, paragraph 5. Reynolds, U.S. Patent No. 3,575,707 issued April 6, 1971 relates to a component mounting system for metallic printed circuit boards having insulating coating on their surfaces in which the drilled hole in the metallic board is lined with a thin walled line of plastic tubing. The heat from the soldering operation causes the liner to expand so that it achieves a tight fit within the hole. Reynolds does not overcome the deficiencies of the primary art references in that is contributes nothing with regard to forming a continuous film from a molten hot

melt adhesives at an area weight of less than 20 g/m^2, nor does it contribute anything with regard to the viscosity of the hot melt adhesive.

Claim 7 is rejected under 35 U.S.C. 103 (a) as being unpatentable over the references as set forth above in paragraph 4 further taken with E.P. 295 694 for the same reasons as expressed in paper no. 6, paragraph 6. E.P. 0 295 694 B1 relates to a waterproof water-vapor permeable laminated structure and application of the same. A melted thermoplastic resin is drawn from an extrusion port of a T-die at a melt viscosity of about **5 X 10^3 Pa.s or more.** (See p. 2, lines 48-54) Not only does this reference not overcome the deficiencies of the primary references, this reference expressly teaches away from the present invention. At p. 3, lines 36-39, the references states that, 'When a thermoplastic resin having a melt viscosity of about 1 X 10^3 Pa.s (10,000 poise) was used some holes were locally found even at a thickness of 50μm (~ 47g/m^2)."

Claims 1-6, 8-12 and 33-46 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Cardinal et al. in view of Skelton et al. optionally further taken with Bunnelle et al. Cardinal et al. relates to the extrusion of film grade thermoplastic ether ester elastomer (TEEE) materials. The Examiner relies on the teachings of Skelton to establish that the Hytrel™ plastics of Cardinal are hot melt adhesive materials. As previously discussed, the present invention employs a hot melt adhesive composition having a specific viscosity, substantially higher than Sanftleben et al., yet substantially lower than film grade polymers. The attached declaration attests to the fact that the Hytrel™ polymers of Cardinal do not have the recited complex viscosity at the extrusion temperature. Further, although the TEEE layer thickness can be down-gauged to values between 5 and 20 microns, the total thickness of the film layer is 25 microns. Claim 33 has been amended to recite the complex viscosity to avoid confusion with regard to the meaning of the term "hot melt adhesive".

With regard to Bunnelle et al, the Examiner states that Figure 2 depicts a hot melt adhesive composition being extruded onto a nonwoven web material and that the slot nozzle was spaced from the nonwoven. Figure 1 also appears to space the slot nozzle from the chill roll, yet at Column 13, lines 66-69, the

reference specifically states that, "The **band** 13 comes into **contact** with chill rolls 15 and 16 **almost immediately** after the extrusion step, so that the band will be cooled . . ." Accordingly, the Applicants dispute the conclusions the Examiner has drawn from Figure 2. More importantly, however, Bunnelle, also fails to overcome the deficiencies of the primarily references with regard to the area weight and complex viscosity features.

With regard to Skelton, there is no motivation for employing an adhesive used in the manufacture of tennis balls with coextruded film art, particulalry since the adhesive of Skelton is intended to be exposed to R-F to melt the adhesive after the tennis ball has been assembled, whereas Skelton is concerned with melt extrusion of film grade polymers at high temperatures.

The Examiner has stated that the declaration is insufficient to overcome the rejections of claims 1-12 and 33-46 because there is no clear nexus between the device tested in the declaration and the device employed by Boger et al. The Applicants disagree and submit that it makes no difference whether a single segmented die is employed or a series of individual modular dies since the opening through which the adhesive passes **what about adding information concerning the spacing? (Statement from Nordson stating the original control coat process having the segmented slot die has been discontinued. The CC-200 Modular Control Coat Applicator is functionally equivalent.)** The Examiner further stated that Boger et al. suggests to employ a HM640 coating device. However, as evidenced by Gill et al. U.S. Patent No. 5,421,921 issued June 6, 1995 at column 6, lines 3-9 and the literature pertaining to HM640 that was submitted to the Examiner 2-14-2000, the HM640 isn't a coating device but rather a device for melting and pumping the adhesive.

In conclusion, the Applicants have provided a showing that while the apparatus of Boger et al. is suitable for producing conformal coatings per se, a continuous coating can not be formed with a molten hot melt adhesive at a low area weight. The method of the present invention differs from the references cited by the Examiner with regard to the area weight of the continuous film and with regard to the viscosity of the adhesive composition during application. All

the independent claims before the Examiner recite these features. Reconsideration and a timely allowance is respectfully requested.

Respectfully submitted,

DRAFT

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